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10/812,917

03/31/2004

Michael Colin Begg

34-125

5698

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ARLINGTON, VA 22203

EXAMINER

TUGBANG, ANTHONY D

ART UNIT

PAPER NUMBER

3729

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/812,917

Applicant(s)

BEGG, MICHAEL COLIN

Examiner

A. Dexter Tugbang

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed on August 3, 2006 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. The applicant(s) election with traverse of the invention of Group II, Species A, Claim 7 in the reply filed on November 13, 2006 is acknowledged. The traversal is on the ground(s) that the product claims can only be made by the claimed process. This is not found persuasive because the final structure of the product claims in Group I, whether this includes shared sheared edges of the coil pattern or not, is not limited to the process steps recited in Group II. See MPEP § 2113. Moreover, patterning by coating can generate to some degree, sharp edges, depending on how the pattern is coated.

The requirement is still deemed proper and is therefore made FINAL.

4. Claims 5, 8, 9 and 10 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on November 13, 2006.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 7, the phrase of “the winding conductors” (lines 3) lacks positive antecedent basis. It is presumed that this phrase is referring to the previous recitation of “shim coil windings” (line 3 of Claim 6).

Furthermore, it is unclear if the phrase of “an insulating substrate” (lines 3-4) is referring to the previous recitation of “an insulating substrate” (line 5 of Claim 6). How many insulating substrates are there?

Claim Rejections - 35 USC § 102

7. Claims 1 through 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Henke 1,801,214.

Henke discloses a method of forming an electrical coil comprising: forming a required coil pattern in a sheet of electrically conductive material by punching (e.g. stamping discussed at page 1, lines 47+).

Regarding Claim(s) 2 and 3, the coil pattern is punched or stamped from a sheet of material and is shaped by stamping and bending from a stamping machine or die (page 1, lines 51-60).

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Regarding Claim(s) 4, no patentable weight has been given to any of the limitations of Claim 4 due to the alternative language of “or” recited in Claim 1 (at line 4). Claim 1 only requires that the sheet be formed by punching or cutting, not both. Since the limitations of punching were selected, the limitations directed to cutting (in Claims 1 and 4) do not further limit the claimed process.

With respect to the process steps being drawn to an “MRIS shim coil”, these limitations recited in the preamble of the claims are merely intended use limitations and have not been given patentable weight since the body of the claims do not depend upon the preamble for completeness and the process steps are able to stand alone. *In re Hirao*, 535 F.2d 67 190 USPQ 15 (CCPA 1976).

Claim Rejections - 35 USC § 103

8. Claims 1 through 4, alternatively, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant(s) Admitted Prior Art, referred to hereinafter as the AAPA, in view of Henke.

In the event that the applicant(s) believe that the preamble of the claims somehow further limits the process to be specifically directed to an MRIS shim coil, then the AAPA (specification, pages 1-3) discloses that making a MRIS shim coil is conventional and well known. However, the AAPA does not teach that the coil pattern of the MRIS shim coil can be made by cutting.

Henke discloses a method of forming a coil pattern as noted above (in paragraph 5) for the advantage of assembling the coil pattern with ease in a closed magnetic core (page 1, col. 15-30).

Regarding Claim(s) 4, no patentable weight has been given to any of the limitations of Claim 4 due to the alternative language of “or” recited in Claim 1 (at line 4). Claim 1 only requires that the sheet be formed by punching or cutting, not both. Since the limitations of punching were selected, the limitations directed to cutting (in Claims 1 and 4) do not further limit the claimed process.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the AAPA by utilizing the process steps of Henke, for the advantage of assembling the MRIS shim coil with ease in a magnetic core.

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Senda et al 5,197,170, Japanese Patent Publication JP 2000-223318, referred to hereinafter as JP’318, and the AAPA.

Senda discloses a method of manufacturing an electrical shim coil comprising: creating plural adjacently positioned shim coil windings (e.g. 16a in Fig. 3) by cutting a continuous sheet of electrically conductive material (e.g. 1 or 15a or 15b) along spaced apart paths, which windings are physically retained in adjacent as-cut positions by an insulating substrate adhered to the conductive material. The claimed “adjacent as-cut positions” is shown by Senda in Figure 3 as the shim coil windings are formed in an array prior to being subdivided (as shown subsequently in Fig. 7). Moreover, Senda discusses forming the continuous sheet of conductive material by sputtering over the entire surface of the substrate, as this would be considered

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“continuous” since it is formed over the entire surface, and that the cutting occurs by removing the conductive material with light, development, and etching (col. 4, lines 15-44).

Regarding Claim(s) 7, Senda further teaches a first cutting step where bridges of material (e.g. 18a in Figs. 4, 5 and 6) are left along cutting paths (cutting lines not labeled in Fig. 6) to physically maintain the adjacent as-cut positions of the shim coil windings while the insulating substrate is adhered to. Then subsequently, a second cutting step occurs with the bridges (e.g. 18a) are cut off, or apart from one another, to completely form an electrical separation between the adjacent shim coil windings (see sequence of Figs. 6 to 8).

Senda does not mention: 1) that the windings are MRIS shim coil windings; and 2) that the removal of the conductive material occurs by laser beam.

JP'318 shows that it is conventional and well known to utilize a process of cutting that removes conductive material (e.g. 4a-4f) with a laser beam (see Solution) for the advantage of patterning a shim coil winding to control the inductance (see Problem to be Solved).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Senda by cutting with a laser beam, as taught by JP'318, for the advantages of patterning the shim coil winding and controlling the inductance of the winding.

The AAPA discloses that forming MRIS shim coil windings are conventional to produce necessary magnetic fields (specification, page 1) within the network. It is well worth noting that Senda produces his shim coils also to produce a magnetic field, for example in a LC composite network. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the shim coil winding of Senda by either forming it

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specifically as an MRIS shim coil winding, or by utilizing it in an MRIS network, in light of the teachings of the AAPA, to perform the very same function of producing a magnetic field in a network.

Response to Arguments

10. The applicant(s) arguments filed on August 3, 2006 have been fully considered, but have now been considered to be met in light of the new grounds of rejections set forth above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

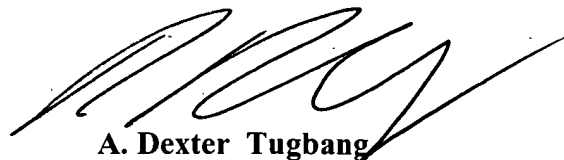
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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570.

The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



A. Dexter Tugbang
Primary Examiner
Art Unit 3729

February 8, 2007